

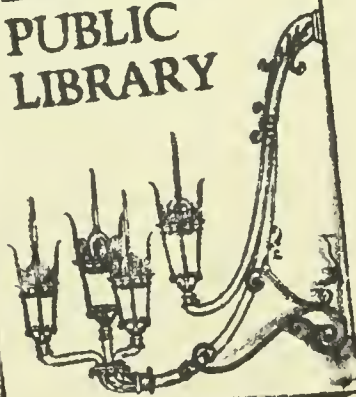
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Interim Report

Chinatown includes a residential neighborhood with considerable commercial activity that is growing rapidly. The community is located at the southern limits of the Boston Central Business District as illustrated in Figure 1. This community already suffers from congestion, poor vehicular circulation, heavy pedestrian activity and an inadequate parking supply. In light of plans for new development both within and surrounding Chinatown, there is increased concern over the ability of residents and visitors to travel to, from and within the area without experiencing long delays or confusion. Particularly important are the pedestrian environment and preservation of the character of Chinatown. Development and associated transportation improvements in the adjacent Cultural District will significantly impact Chinatown. While traffic throughout downtown Boston is likely to increase due to Cultural District development, much of the effect to Chinatown may be offset by proposed circulation changes that could divert vehicles from Kneeland and Beach Streets.

1. Preliminary Data Collection
2. Develop Preliminary Circulation Plan
3. Identify Key Impact Areas
4. Develop Improvement Options
5. Analysis of Potential Improvements
6. Develop Preliminary Recommendations
7. Final Report and Circulation Plans

II. Vehicle Circulation

Traffic counts were collected from the Boston Transportation Department and balanced AM and PM peak networks developed for the Chinatown core commercial area between Kneeland and Essex Streets. Essex Street is one-way eastbound and carries traffic to the Surface Artery from downtown and the Back Bay. Kneeland Street also serves as a major route into and out of Park Square, the Back Bay, the Theater District and New England Medical Center. Beach Street, which is not designed as a through route, still seems to receive a higher than desired volume of through traffic. Its proximity to the Central Artery southbound off-ramp makes it tempting as a shortcut for traffic going to either southbound Harrison Avenue or northbound Washington Street. During PM peak there appears to be a heavy movement of commuter traffic leaving downtown via Kingston Street, Beach Street and Harrison Avenue.



FIGURE 1

CHINATOWN MASTER PLAN SURVEY

Among north-south streets in the Chinatown core, Harrison Avenue and Kingston streets are the most heavily used. Southbound traffic on both streets is substantially greater in the PM peak period than in the AM peak. In the PM peak hour 230 vehicles traveling southbound on Harrison Avenue Extension cross Essex Street while in the AM peak hour only 49 vehicles do so. A similar pattern is found on Kingston, with 187 vehicles traveling across Essex Street on Kingston during the PM peak hour and only 82 doing so in the AM peak hour. In both cases this traffic results primarily from commuters leaving the CBD and traveling via Harrison Avenue to the south. The area networks for AM and PM peak hours are shown in Figure 2 and 3.

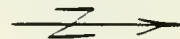
The traffic circulation plan proposed by the community to the BRA was evaluated for its impact on AM and PM peak hour traffic. The major elements of the plan were prohibition of access to Beach Street through the Chinatown gate and the reversal of Harrison Avenue from one-way southbound to one-way northbound between Essex and Beach Streets. This traffic circulation plan is tied to a more general strategy designed to create a pedestrian-oriented business area along Beach Street to Washington Street, and along Harrison Avenue. The networks shown in Figures 4 and 5 describe the impact of these changes in the AM and PM peak hours.

The Central Artery off-ramp to Beach Street will disappear when the reconstruction of the Artery takes place. It appears, however, that the prohibition of traffic through the Chinatown gate could be accomplished in a shorter time frame. The closing of this access would shift some traffic from Beach Street to Kneeland Street, but the overall traffic increase on Kneeland would not be great. In the AM peak hour about 220 vehicles would be removed from Beach Street while in the PM peak about 180 vehicles would be removed. It is important to note that the possible construction of a through route from the Surface Artery to Washington and Tremont Streets via Avenue deLafayette and Avery Street would provide relief to Kneeland. Cultural District planning work conducted for the BRA indicates that the reduction of traffic on Kneeland Street resulting from this alternative would more than offset the increase resulting from the closing of the Chinatown Gate.

Under the proposed circulation scheme, however, the reversal of Harrison Avenue would result in traffic along Beach Street which would offset the reduction achieved by closing the Chinatown gate entrance. Much of the traffic now crossing Essex Street on Harrison Avenue, or turning right from Essex Street to Harrison Avenue southbound would have to continue west on Essex Street. It is likely that most of these vehicles would cut back to Harrison Avenue via either Edinboro or Kingston Street to Beach Street. This move would be made more attractive by the closing of the Artery ramp (which would allow a free right turn from Kingston to Beach), and the reversal of Harrison (which would allow a free left turn from Beach to Harrison). This route would be a shorter path to southbound Harrison than the route using the Surface Artery and Kneeland, and it is likely that commuters would only use this longer route via Essex, Surface Artery and Kneeland when congestion along Kingston and Beach again became intolerable. Kingston and Edinboro are both narrow local streets with limited capacity. Boston commuters, however, have traditionally shown little reluctance to use such streets to bypass congested areas. Figures 6 and 7 show the impact of closing Beach Street without reversing Harrison Avenue.

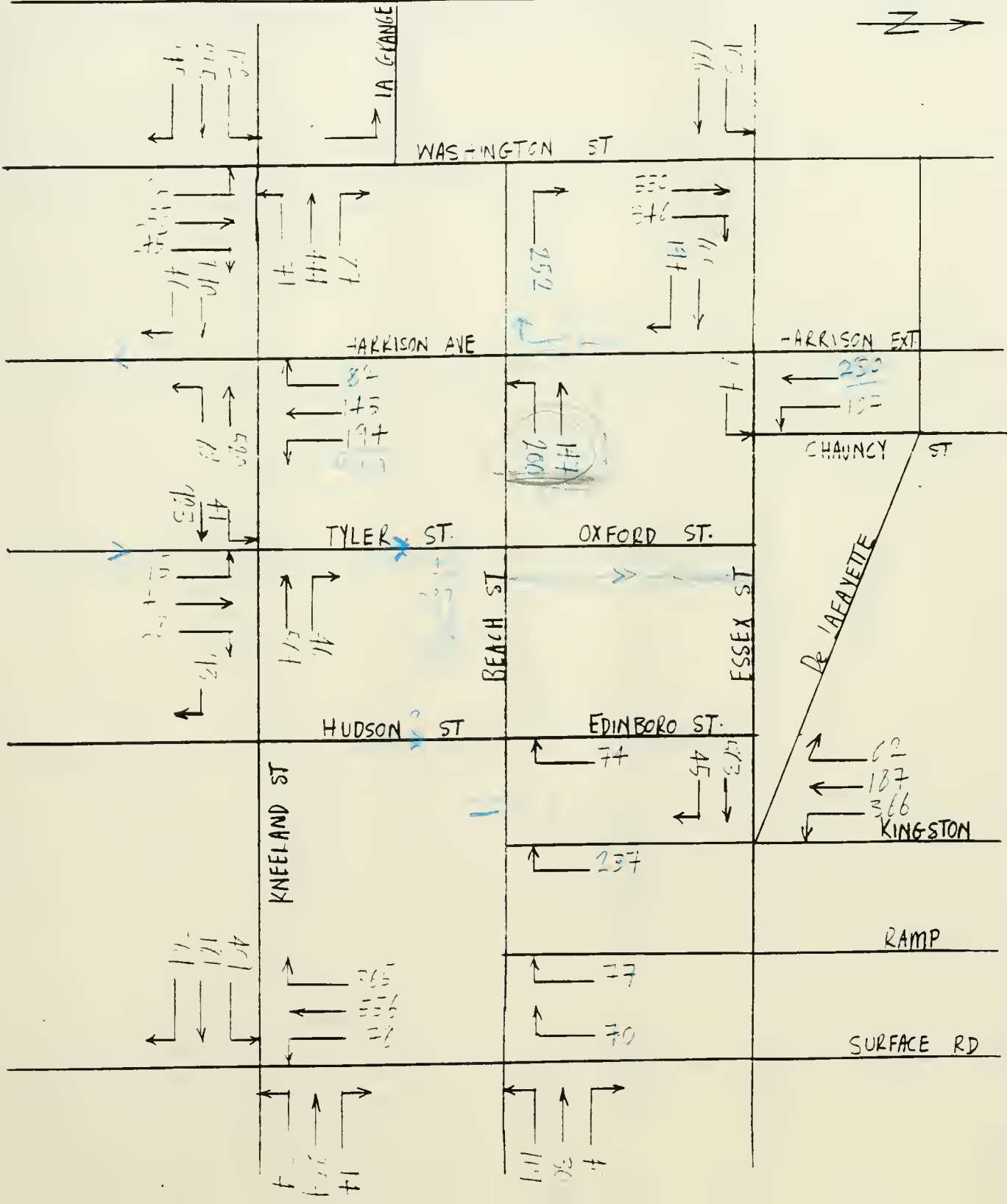
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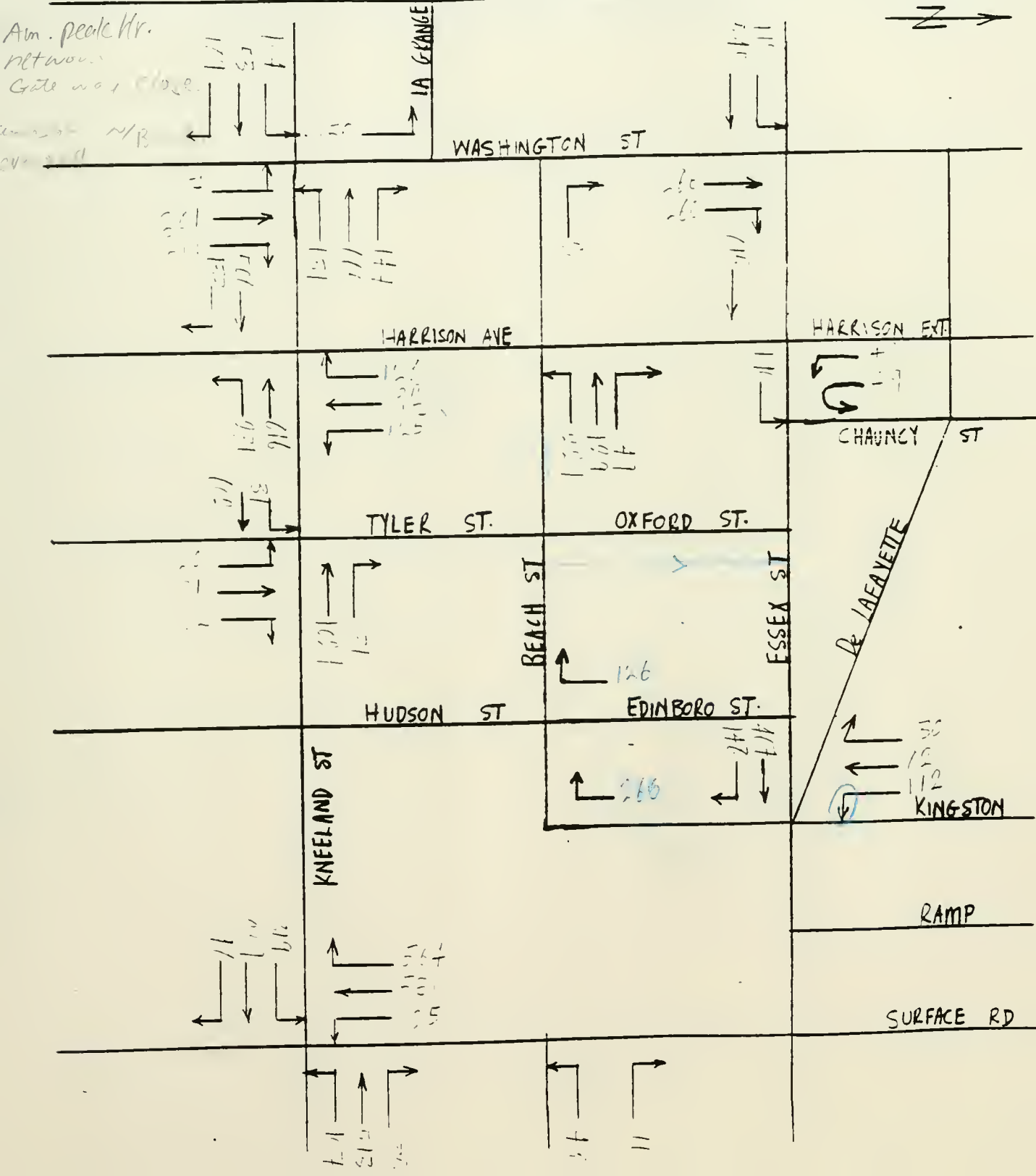
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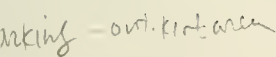
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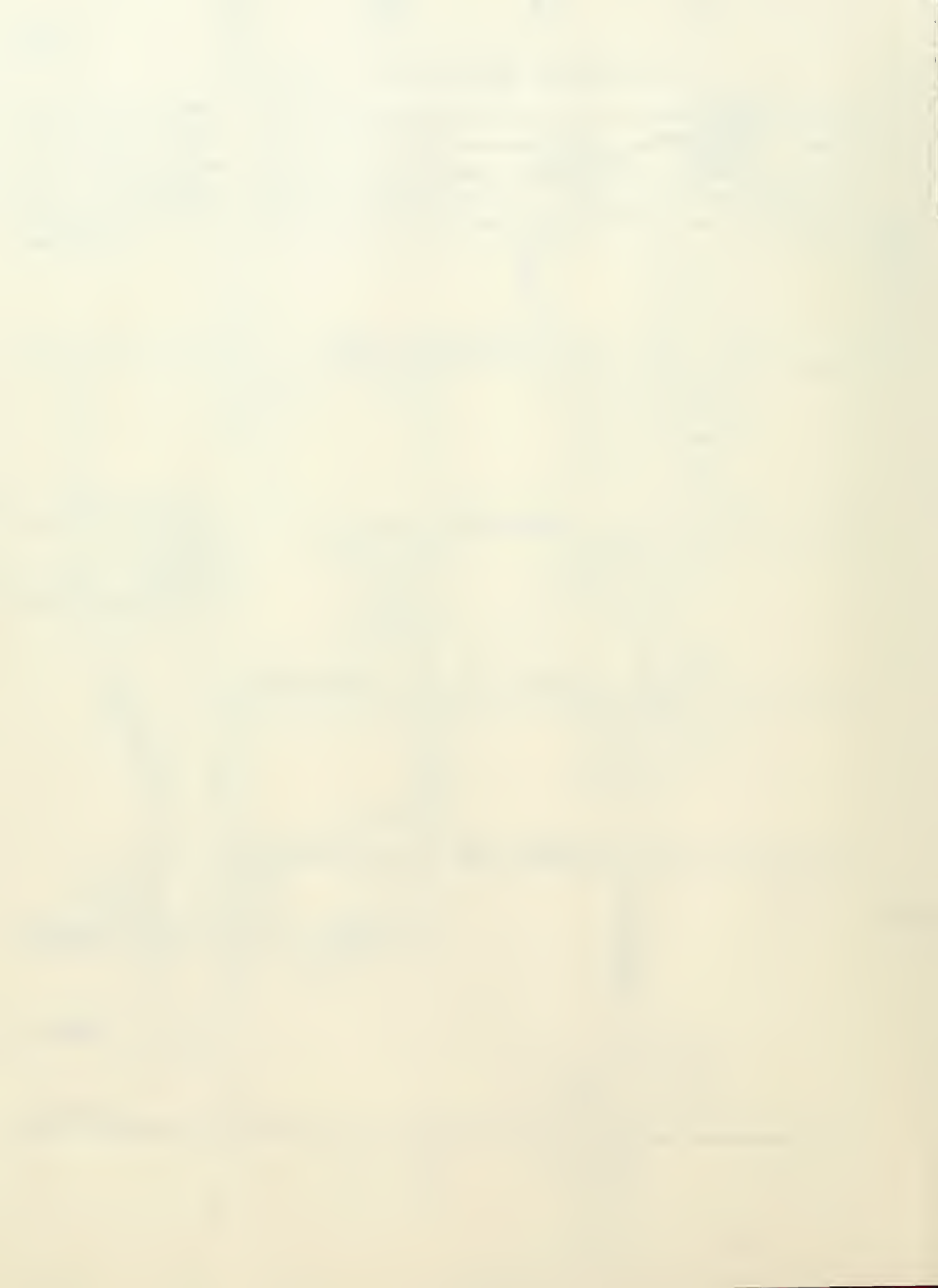
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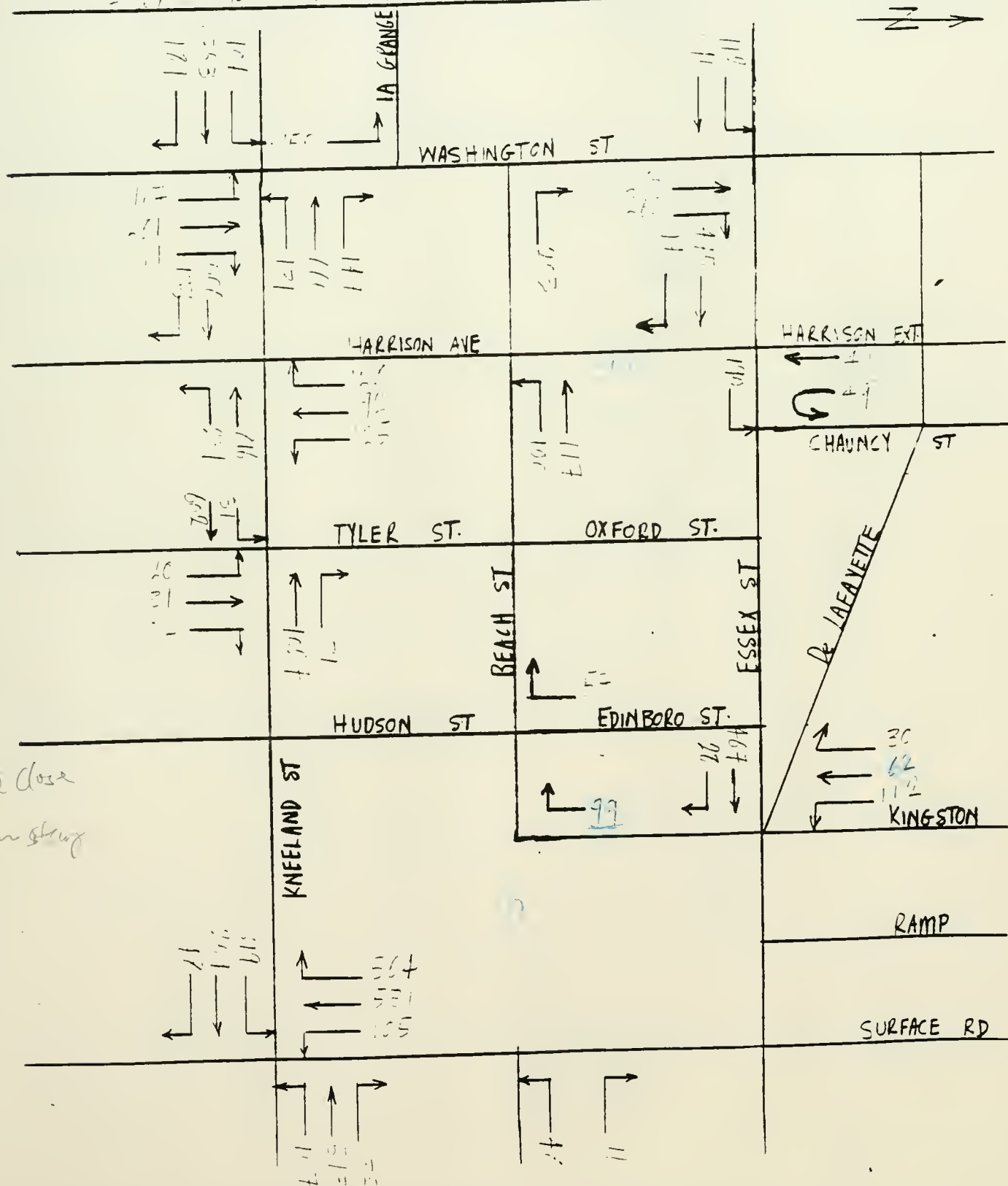
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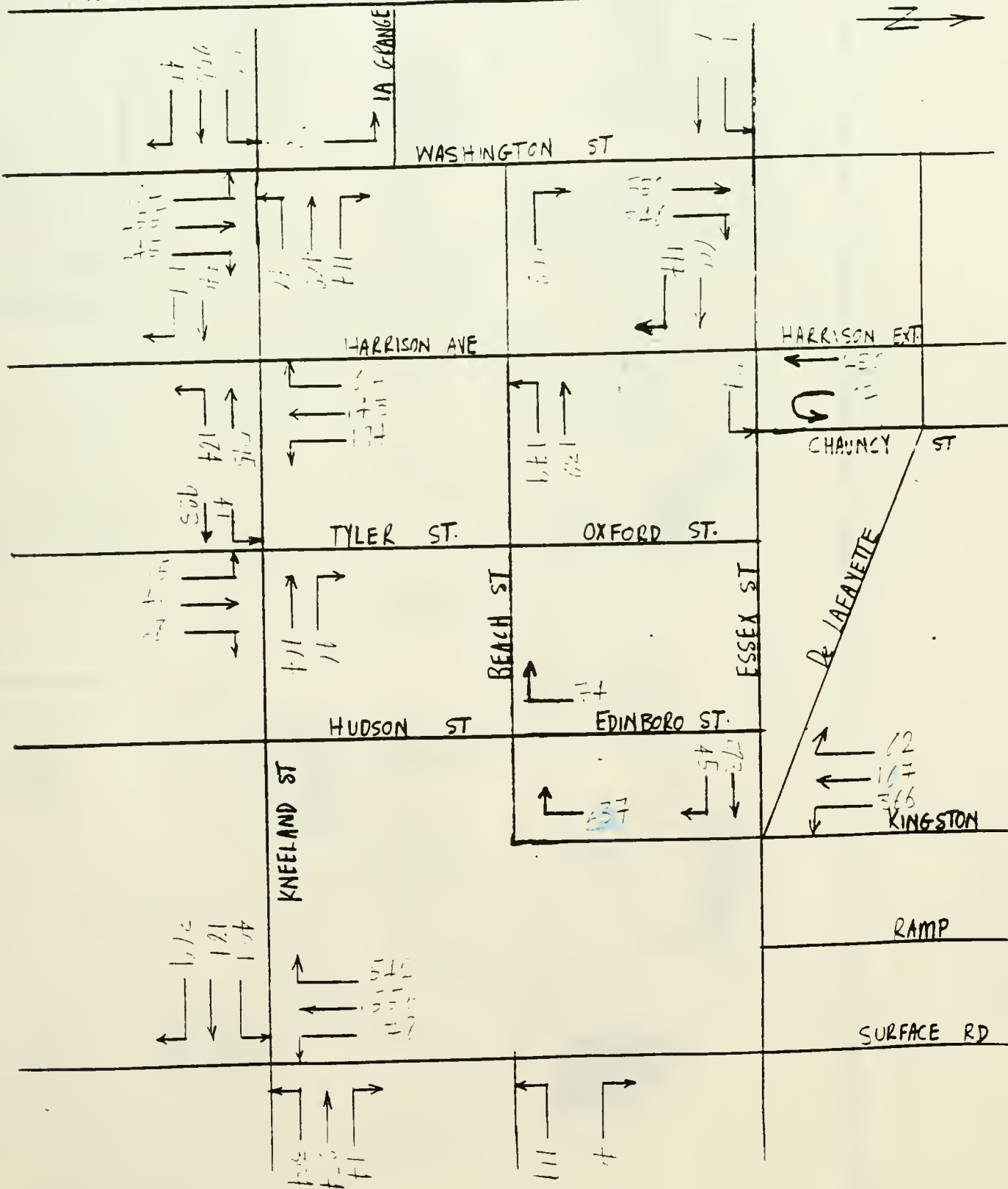
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

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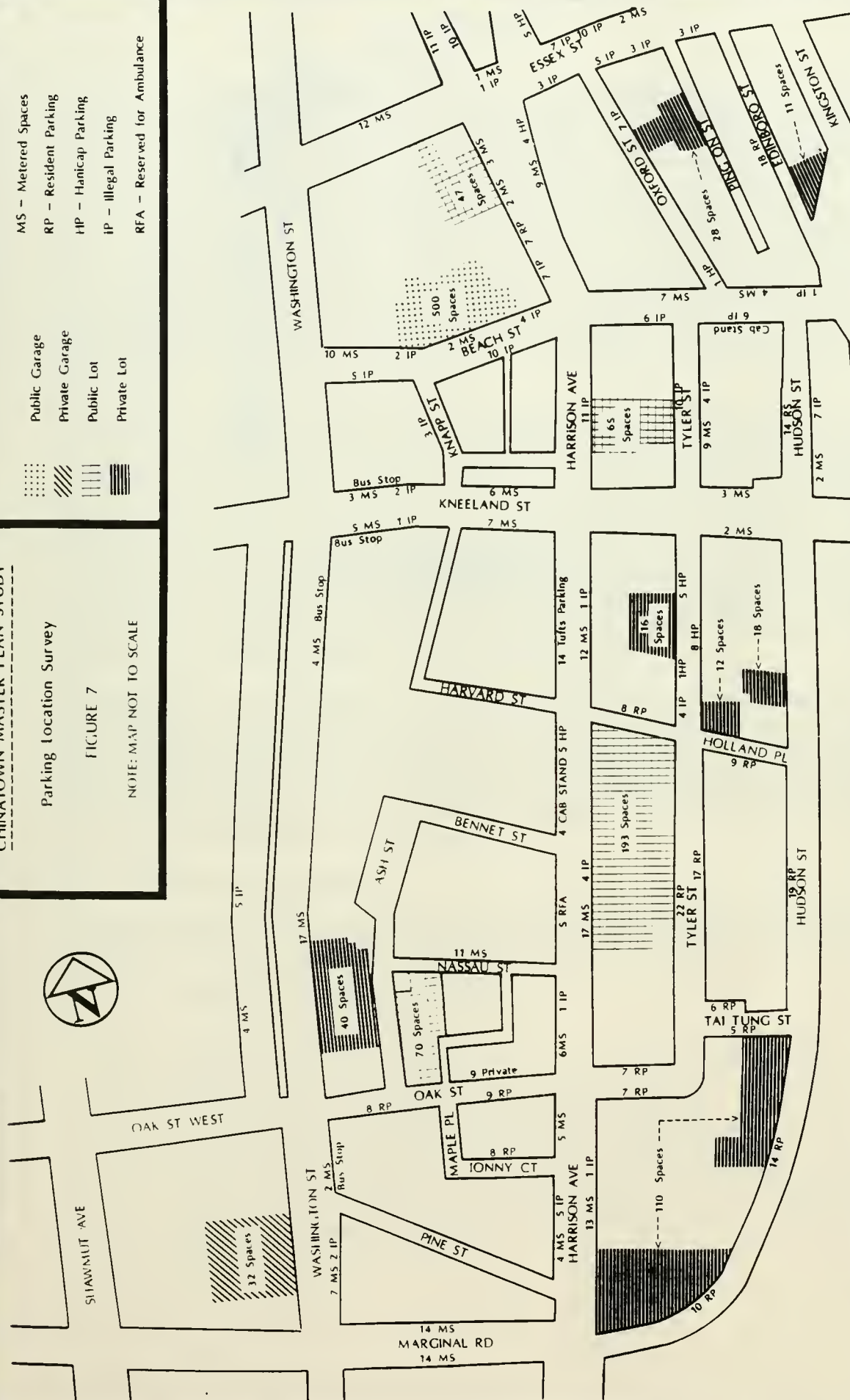


LEGEND

MS – Metered Spaces
RP – Resident Parking
HIP – Handicap Parking
IP – Illegal Parking
RFA – Reserved for Authority

Public Garage	Private Garage	Public Lot	Private Lot
			

NOTE: MAP NOT TO SCALE



Essex and Kneeland Streets will remain major through routes but the use of Beach Street as a reliever for these streets should be prevented if possible. The desire to remove through traffic from Beach Street is compatible with proposed plans for an improved pedestrian environment in the core commercial area. The closing of the Chinatown gate entrance does appear to be feasible, pending a more detailed analysis of Kneeland Street, where the major impact of the closing will occur. The reversal of Harrison Street north of Beach, on the other hand, does not appear to provide traffic relief to the Chinatown commercial core. This action, combined with the closing of the Chinatown gate entrance, makes the use of Kingston Street (and to some extent, Edinboro Street) more attractive as a shortcut to Harrison Avenue southbound. While the pedestrian environment on Harrison Avenue could be improved, the elimination of through traffic does not appear to be advisable at this time.

Compatible with the closing of the Chinatown gate entrance would be actions to reduce the use of Kingston Street for through trips. Emergency access to the Chinatown core and truck access to factories along Edinboro and Kingston Streets will require that these streets remain open. Neckdowns along Kingston at Essex and/or Beach Street could be used to discourage traffic currently cutting through Chinatown from the north. Decreased auto use of other local north-south streets in the commercial core such as Hudson and Tyler is also desirable for enhancement of the pedestrian environment in the area. The strict prohibition of on-street parking on Beach Street would probably be helpful to the pedestrian environment since much of the traffic using these streets is cruising for desirable on-street parking in the commercial core.

In summary, the environment in the Chinatown commercial core would be improved by the closing of the Chinatown gate entrance to Beach Street, the elimination of on-street parking along Beach Street and realignment of Kingston Street to discourage through traffic. While the heavy use of Harrison Avenue for through traffic does create a barrier between the old commercial core and the expanding area of Chinatown to the west, the de-emphasis of Harrison Avenue does not appear to be feasible at this time.

III. Pedestrian Environment

An evaluation of the pedestrian environment in the Chinatown commercial core was conducted using pedestrian counts taken at six locations:

- o Kneeland and Harrison Streets
- o Kneeland and Tyler Streets
- o Beach Street between Tyler and Hudson Streets
- o Beach Street between Tyler and Harrison Streets
- o Essex Street, Harrison Avenue and Chauncy Street (Phillips Square)
- o Essex and Kingston Streets

These pedestrian counts are summarized in Tables 1-6. All locations were counted on Saturday (March 12th and 19th) and all but Essex/Kingston were also counted on a weekday (Thursday, March 10). On all days the weather was sunny with temperatures in the high 40's to low 50's. All counts were taken during the midday peak (11:30 AM to 2 PM on Saturday and Noon to 2 PM on Thursday), which is generally the peak time for pedestrian traffic in a downtown commercial area. Along Beach Street midday volumes were 20% - 30% higher on Saturday with the exception of the north side of Beach Street between Tyler and Hudson. In this stretch, pedestrian traffic was over twice as great on Saturday. The intersections surveyed along Kneeland and Essex Streets also did not show great variation between Saturday and Thursday. This finding is somewhat surprising since there is a general impression that the area is considerably more crowded on Saturday. It appears that while there is greater overall pedestrian traffic on Saturday, it is spread more evenly throughout the day. During the weekdays, workers from downtown and the NEMC area converge on the area over a 1 1/2 to 2 hour period, creating a peak similar to that found on Saturday.

Several methods were used to evaluate the level of service for pedestrian traffic. The Highway Capacity Manual uses separate methods for evaluating crosswalks, sidewalks and curbside queuing areas. For crosswalks and queuing areas, the measurement of level of service is the number of square feet available per pedestrian. A number of interim calculations are made to account for signal timing, crosswalk lengths and widths and conflicting pedestrian movements. There are two measurements for crosswalk level of service, one for an "average" condition during the walk cycle; the other for maximum surge" condition, which represents the period in the middle of the cycle in which the maximum number of pedestrians are in the crosswalk. For sidewalk level of service, the measurement used is a slightly different one; the number of pedestrians per minute per square foot of sidewalk width. An adjustment is made for "platooning" in areas such as Chinatown, where people tend to walk in groups. Table 7 provides a description of the level of service measures for pedestrian facilities.

It is important to note the limitations of a technical evaluation of pedestrian facilities. These measures are generally designed to evaluate normal rates of pedestrian flow. Acceptable levels of pedestrian service indicate that movement can be accomplished at a normal rate of walking speed without discomfort resulting from contact. It does not necessarily mean that the Level of Service is acceptable for a pedestrian-oriented environment, such as that envisioned for the Chinatown commercial core.

As expected, the major problem area in terms of pedestrian level of service is on Beach Street. Sidewalk obstacles such as trash cans and parking meters result in effective sidewalk widths of only 1-2 feet at certain spots along Beach Street between Tyler and Harrison. A number of the shop and restaurant windows attract attention from pedestrians, further narrowing the available space for passing pedestrian traffic. Levels of service along Beach Street are generally "C" or worse during both weekday and Saturday peak periods. On Saturdays the area along the north side of Beach between Oxford and Edinboro goes to "F" (virtually impassible) and the south side of Beach Street in the same area goes to "E". Because shopping is more common during the Saturday midday period, many pedestrians are trying to negotiate this area with grocery bags or carts of some type.

TABLE 1

Chinatown Pedestrian Counts

Kneeland/Harrison Intersection

	Crossing Kneeland East Side	Crossing Kneeland East Side	Crossing Kneeland West Side	Crossing Kneeland West Side	Crossing Harrison North Side	Crossing Harrison North Side	Crossing Harrison South Side	Crossing Harrison South Side
	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday
TIME								
Starting								
11:30 AM		41		62		29		36
11:45 AM		47		59		31		41
12:00 PM	80	82	127	73	35	50	72	89
12:15 PM	87	57	98	52	30	60	52	75
12:30 PM	78	77	131	72	53	52	43	102
12:45 PM	86	61	142	76	37	59	67	62
1:00 PM	75	76	117	68	31	49	69	72
1:15 PM	92	78	102	63	45	34	49	87
1:30 PM	72	55	96	50	33	29	44	105
1:45 PM	81	47	83	68	39	33	30	56
TOTAL								
12-2 PM	651	533	896	522	303	366	426	648

TABLE 2
ChinaTown Pedestrian Counts

Kneeland/Tyler Intersection

TIME	Crossing Kneeland East Side	Crossing Kneeland East Side	Crossing Kneeland West Side	Crossing Kneeland West Side	Crossing Tyler North Side	Crossing Tyler North Side	Crossing Tyler South Side	Crossing Tyler South Side
	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday
Starting								
11:30 AM								
11:45 AM		31		25		31		18
12:00 PM	52	51	28	6	85	101	56	29
12:15 PM	55	51	29	27	58	89	50	31
12:30 PM	72	46	39	21	60	64	45	36
12:45 PM	61	33	27	29	39	69	50	36
1:00 PM	62	64	29	23	49	75	42	54
1:15 PM	51	76	25	43	21	78	40	65
1:30 PM	27	63	19	36	23	73	31	26
1:45 PM	25	48	11	18	36	72	25	35
TOTAL								
12-2 PM	405	432	207	203	371	621	339	312

TABLE 3

IndianaTown Pedestrian Counts

Beach St. between Tyler and Hudson

	Beach bet Tyler/Hudson North Side	Beach bet Tyler/Hudson North Side	..	Beach bet Tyler/Hudson South Side	Beach bet Tyler/Hudson South Side	..
	weekday	Saturday		weekday	Saturday	
TIME						
Starting						
11:30 AM		336			220	
11:45 AM		332			210	
12:00 PM	140	293		113	170	
12:15 PM	149	292		128	175	
12:30 PM	180	290		164	164	
12:45 PM	149	309		111	186	
1:00 PM	138	237		149	113	
1:15 PM	93	271		104	138	
1:30 PM	116	281		156	146	
1:45 PM	108	375		110	192	
TOTAL						
12-2 PM	1073	2348		1035	1284	

TABLE 4

ChinaTown Pedestrian Counts

Beach St. between Tyler and Harrison

	Beach bet Tyler/Harrison North Side	Beach bet Tyler/Harrison North Side	Beach bet Tyler/Harrison South Side	Beach bet Tyler/Harrison South Side	
	Weekday	Saturday	Weekday	Saturday	
TIME					
Starting					
11:30 AM		166		159	
11:45 AM		240		222	
12:00 PM	239	294	198	268	
12:15 PM	224	269	171	206	
12:30 PM	244	403	167	290	
12:45 PM	240	184	193	134	
1:00 PM	206	319	144	246	
1:15 PM	271	200	261	129	
1:30 PM	284	385	224	265	
1:45 PM	225	306	137	264	
TOTAL					
12-2 PM	1933	2360	1515	1802	

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Town Pedestrian Co

Essex/Harrison Interse

(Phillips Square)

TIME	Crossing		g	Crossing		H	Crossing		H	Crossing		H	Crossing	
	Essex	East Side		Essex	West Side		Harrison	North Side		Harrison	North Side		Harrison	South Side
	Weekday	Weekday		Weekday	Saturday		Weekday	Saturday		Weekday	Saturday		Weekday	Saturday
Starting														
11:00 AM		115			43			33						13
11:45 AM		131			82			19						12
12:00 PM	183	136		110	64		104	26					49	27
12:15 PM	163	160		89	37		37	29					37	50
12:30 PM	188	171		106	106		25	28					39	40
12:45 PM	186	205		146	72		46	47					45	53
1:00 PM	207	284		104	107		34	42					42	60
1:15 PM	160	178		86	115		35	21					40	45
1:30 PM	138	216		95	110		19	67					35	58
1:45 PM	102	164		49	82		12	54					24	41
TOTAL														
12-2 PM	1327	1514		785	743		312	314					311	374

TABLE C

ChinaTown Pedestrian Counts

Essex/Kingston

	Crossing Essex East Side	Crossing Essex West Side	Crossing Essex East Side	Crossing Essex West Side	Crossing Kingston North Side	Crossing Kingston North Side	Crossing Kingston South Side	Crossing Kingston South Side
	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday
TIME Starting								
11:30 AM		28		13		19		30
11:45 AM		20		10		25		24
12:00 PM	32	19	16	11	42	26	15	29
12:15 PM	1	12	18	6	28	14	29	34
12:30 PM	24	11	6	4	26	25	22	14
12:45 PM	19	7	11	11	15	19	17	13
1:00 PM	9	10	18	4	19	33	10	17
1:15 PM	13	17	11	3	17	25	8	7
1:30 PM	18	15	12	7	35	26	15	9
1:45 PM	7	18	4	6	10	23	9	10
TOTAL 12-2 PM	103	109	96	52	192	191	125	130

TABLE 7

PEDESTRIAN LEVELS OF SERVICE

LEVEL OF SERVICE A

Pedestrian Space: > 130 sq ft/ped Flow Rate: < 2 ped/min/ft

At walkway LOS A, pedestrians basically move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected, and conflicts between pedestrians are unlikely.

LEVEL OF SERVICE B

Pedestrian Space: > 40 sq ft/ped Flow Rate: < 7 ped/min/ft

At LOS B, sufficient area is provided to allow pedestrians to freely select walking speeds, to bypass other pedestrians, and to avoid crossing conflicts with others. At this level, pedestrians begin to be aware of other pedestrians, and to respond to their presence in the selection of walking path.

LEVEL OF SERVICE C

Pedestrian Space: > 24 sq ft/ped Flow Rate: < 15 ped/min/ft

At LOS C, sufficient space is available to select normal walking speeds, and to bypass other pedestrians in primarily unidirectional streams. Where reverse-direction or crossing movements exist, minor conflicts will occur, and speeds and volume will be somewhat lower.

LEVEL OF SERVICE D

Pedestrian Space: > 15 sq ft/ped Flow Rate: < 15 ped/min/ft

At LOS D, freedom to select individual walking speed and to bypass other pedestrians is restricted. Where crossing or reverse-flow movements exist, the probability of conflict is high, and its avoidance requires frequent changes in speed and position. The LOS provides reasonably fluid flow; however, considerable friction and interaction between pedestrians is likely to occur.

LEVEL OF SERVICE E

Pedestrian Space: > 6 sq ft/ped Flow Rate: < 25 ped/min/ft

At LOS E, virtually all pedestrians would have their normal walking speed restricted, requiring frequent adjustment of gait. At the lower range of the LOS, forward movement is possible only by "shuffling." Insufficient space is provided for passing of slower pedestrians. Cross- or reverse-flow movements are possible only with extreme difficulties. Design volumes approach the limit of walkway capacity, with resulting stoppages and interruptions to flow.

LEVEL OF SERVICE F

Pedestrian Space: < 6 sq ft/ped Flow Rate: variable

At LOS F, all walking speeds are severely restricted, and forward progress is made only by "shuffling." There is frequent, unavoidable contact with other pedestrians. Cross- and reverse-flow movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristic of queued pedestrians than of moving pedestrian streams.

It should be noted that urban design as well as transportation considerations are important in the evaluation of pedestrianization proposals. Some level of "crowding" is desirable in order to create the desired atmosphere. Therefore an "A" level pedestrian activity, in which there is totally free movement, would not be appropriate. There is clearly a need, however, to provide a more comfortable environment for pedestrian movement on Beach Street by providing more room. Sidewalk widths along Beach Street vary from under seven feet to approximately 11 feet. It appears that a continuous effective width of 6-7 feet is required in order to bring midday peak pedestrian level of service up to the B-C range. This could be accomplished by:

- o Removal of all parking meters between the Chinatown gate and Harrison Avenue with a strict prohibition of on-street parking.
- o Reducing Beach Street from its current 35 foot width to 25 feet by adding approximately 5 feet of sidewalk to each side of the street between Harrison Avenue and the Chinatown gate. This is the area of most activity. If this proves successful, it may warrant consideration of further widening toward Washington Street.
- o Move the cab stand on the south side of Beach Street to one of the side streets.
- o Move all street furniture (planters, trash cans, etc.) to the outer part of the new five foot strip.

Additional landscaping along the edge of the expanded sidewalk would separate remaining traffic from the sidewalk pedestrian flows. With a strict parking prohibition, the remaining 25-foot width of Beach Street should be adequate to serve remaining traffic and any deliveries which must continue to take place on Beach Street. Full pedestrianization of Beach Street would be difficult given the limited alternative routes for vehicles using parking and loading areas on the side streets to exit the area. Although it may be possible to restrict vehicle traffic entirely for an hour or two around the mid-day peak period, the sidewalk widening and absolute prohibition of parking on Beach Street, combined with improved landscaping, would create a pleasant pedestrian environment. #V

The Chinatown community has expressed concern about pedestrian access across both Kneeland Street and Essex Street. The Kneeland Street connection is particularly important since most residential growth is occurring in the southern part of the neighborhood near the Turnpike. Because most residents do not have autos, they must cross Kneeland Street regularly for many of their daily activities. Level of service analysis was conducted for the holding areas and crosswalks at Kneeland/Tyler, Kneeland/Harrison and Essex/Harrison/Chauncy.

The analysis indicates that the crosswalks are generally adequate to serve existing demand at the intersections along Kneeland. Volumes of pedestrian traffic do not appear adequate to justify a grade-separated pedestrian facility. The holding areas on the north side of Kneeland Street at Tyler are somewhat crowded (level of service "C") due to narrow sidewalk widths and the presence of street furniture. While the Kneeland Street crosswalks operate adequately from a technical point-of-view, the pedestrian connections across Kneeland have some negative characteristics in terms of community impacts and urban design. The

existing signals use the red/yellow combination for the walk cycle, which is somewhat confusing. The volume of traffic and relatively narrow crosswalks are intimidating to elderly pedestrians and there is not a good visual connection between the two sides of the street. Final proposals for alleviating these problems must await more detailed traffic analysis of Kneeland Street. Kneeland is already heavily loaded at peak hours and would receive additional traffic if the China gate entrance to Beach Street is closed. It is not clear that the pedestrian cycle time can be significantly lengthened or that street widths can be reduced (via neckdowns or median islands) without negatively impacting traffic flow. It is possible, however, to widen the crosswalks and move street furniture on both Tyler and Harrison to create a better visual connection between the two sides of the street.

At Essex/Harrison/Chauncy, pedestrians crossing Essex Street to Chauncy must negotiate an ongoing stream of traffic traveling eastbound on Essex. Because the intersection is not signalized, the level of service analysis is more subject to assumptions. It does appear, however, that traffic crossing Essex experiences a level of service in the C-D range at the midday peak. It is also clear that there is a safety problem, which could be exacerbated by the increased volume of Essex Street resulting from new development in the Cultural District. The creation of an Essex Street pair (using Ave. deLafayette and Avery Street to serve westbound traffic) may also involve the placement of a traffic signal at this intersection. If this is accomplished, pedestrian movement across Essex would obviously be improved. The potential implementation of a pedestrian signal will also be evaluated in the detailed traffic analysis. If signalization is not feasible, the proposal to narrow the opening of Harrison Avenue by enlarging the sidewalk area on the southwest corner may help to channel pedestrians on to a single crosswalk, eliminating the random crossings which occur now. This alternative would have the further advantage of improving pedestrian connections across Harrison Avenue and creating a stronger link between the older part of Chinatown and the Washington Street area where expansion is proposed.

IV. Parking Inventory

Figure 7 shows a parking inventory for the Chinatown area. The map highlights the substantial amount of illegal parking taking place in the commercial area. Legal on-street spaces in the commercial district are in short supply and observation of the area indicates that enforcement is intense. There are also indications that parking in loading zones is forcing delivery trucks to double park in the streets. The parking demand in the Chinatown business district cannot be satisfied with the combination of on-street and off-street spaces available in the immediate area of the commercial core. There is also a need for the business community to develop a cooperative organization to deal with the parking problem. This will improve the efficiency of existing spaces and will provide the community with a group which can effectively negotiate for use of space in new parking facilities proposed for the outer edge of the area.

Most of Chinatown's parking supply is concentrated in the lower part of Chinatown near the major housing developments. In addition, there is substantial resident-only parking south of Kneeland Street along Hudson and Tyler Streets. Users of New England Medical Center also compete for available

spaces in the area of south of Kneeland Street. BRA data indicated that approximately 500 vehicles are owned by Chinatown residents. While there appears to be just enough parking to satisfy this demand, further growth in either the housing stock or automobile ownership rates (which are currently extremely low) will create a shortage of resident spaces. Clearly any growth in the northern part of Chinatown must be accommodated in downtown-oriented parking facilities possibly through agreements allowing residential use of garage facilities in the evening hours for a reduced rate.

V. Van Transportation

Vans carrying employees to suburban restaurants are a major source of congestion in Chinatown for approximately one-half hour after 10 AM and 3 PM each day (including Saturday). Although there are a number of designated pick-up and drop-off spots in the commercial core, the number of vans far exceeds the capacity of these spots or the commercial core in general. Observations indicated that a total of 15-20 vans virtually lined the length of Beach Street between Hudson and Harrison, and the east side of Harrison between Kneeland and Essex during the pick-up periods. Most were double parked, hindering both vehicular and pedestrian traffic. The proposal to set aside a van parking area on the eastern end of Chinatown, on land created by the closing of the Central Artery ramp appears to be a good solution to the problem. Because the site might be too small to handle all vans at the same time, vans should be scheduled to 15-minute slots, after which time they would have to leave. Access to the site should be controlled by gates (with access by electronic card) in order to prevent illegal parking and loading in the site.

The development of this lot, however, is a long-term alternative. Relief from this problem is needed in a much shorter time frame. Suggestions have been made to negotiate for use of area parking lots for pick-ups including:

- o Tyler/Harrison Lot
- o Tufts-New England Medical Center Lot
- o R2/R2A Parking Lot
- o Teredyne Parking Lot

These negotiations should be pursued, although some lots may lack adequate capacity in either the morning or the afternoon. If adequate space cannot be obtained in these areas, the feasibility of loading at least some of the vans outside the commercial core should be examined. One option would be to negotiate for reservation of the curb lane on the southbound Surface Artery below Beach Street. An immediate priority should be to remove the vans from Beach Street where they are most disruptive.

VI. Truck Deliveries

Truck deliveries are clearly a major source of congestion in the commercial district during the midday period. During the lunch hour, when the area is most crowded with pedestrians, Beach Street is lined with delivery trucks, most of

which are double-parked. This problem results from other vehicles being parked in side-street loading zones, and the desire of truck drivers to park as close as possible to their destinations. Despite this, many of the drivers must cart their goods up and down Beach Street to complete their deliveries. This activity interferes with both pedestrian and vehicular traffic and should be removed from Beach Street. The existing loading zone on Beach Street should be removed. If there are truck deliveries which absolutely require the use of Beach Street, special permits should be given on a case-by-case basis and time limits strictly enforced.

A short-term policy should be to shift food deliveries to the loading zone on Hudson Street as well as side streets such as Edinboro and Kingston, where there is already substantial food-oriented and industrial truck activity. Loading zone space on these streets should be increased and clearly signed. Enforcement actions should be taken to assure that adequate loading and unloading space exists. When this is accomplished, laws against double-parking on Beach Street should be strictly enforced. Time restrictions should also be evaluated in more detail, although this will require input from the business community. Some delivery vehicles appear to come from great distances (Western Massachusetts, northern New England) and may not be easily able to accommodate their schedules to limited hours.

VII. Summary

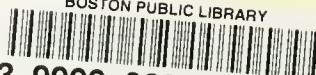
The key element of the Master Plan Transportation Element should be the development of a more pedestrian-oriented environment on Beach Street and the removal of through traffic from the Chinatown commercial core. Accomplishing this would require the closing of Beach Street at the Chinatown gate, the widening of sidewalks along both sides of Beach Street by approximately 5 feet, improved landscaping and redesign of the sidewalk areas and absolute prohibition of parking on Beach Street (including the removal of the cab stand to Tyler or Hudson Street and the elimination of loading zones on Beach Street). Actions should also be taken to improve the pedestrian environment at the Kneeland/Tyler and Kneeland/Harrison intersections and at Phillips Square. These actions should include widening of crosswalks, and pending further traffic analysis, increase in the pedestrian cycle (at the Kneeland Street intersections) or signalization (at Phillips Square).

Some reduction in traffic along Kneeland Street will occur if a westbound Essex Street/Avery Street route is developed to serve the downtown. It appears, however, that Kneeland and Essex Streets will continue to serve as major east-west through traffic corridors in the area. At the present time, it appears that Harrison Avenue will probably remain a major north-south street, although further signing should be developed to move as much southbound traffic as possible to the Surface Artery. The future of Marginal Street is currently being evaluated as part of the Central Artery/Third Harbor Tunnel project, although the development of alternatives to reduce the impact of the project on Marginal Street should be vigorously pursued. Kingston and Edinboro should be used during daytime hours to relieve truck double-parking on Beach Street. The problem of restaurant worker vans also leads to double-parking and disruption of Beach Street. The long term development of a lot on the eastern edge of the business district should be supported along with shorter-term uses of nearby parking lots or reserved curb lanes outside the commercial core.

Parking is a severe problem for merchants, residents and visitors. Improved signing should be developed to guide visitors to commercial garages. Community merchants and businesspeople should cooperatively develop a strategy to make most efficient use of limited on-street and off-street space and should negotiate with surrounding garage owners for nighttime use of space by residents and visitors to the area. The City should carefully monitor the need for resident parking since growth in both the housing supply and the auto ownership rate are likely.

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